

Building Site Development
Traill County, North Dakota

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. The following tables show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slight indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Moderate indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Severe indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

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Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Ar: Arveson-----	Severe: wetness cutbanks cave	Severe: wetness	Severe: wetness	Severe: wetness	Severe: frost action wetness	Severe: wetness
As: Arveson-----	Severe: wetness cutbanks cave	Severe: wetness	Severe: wetness	Severe: wetness	Severe: frost action wetness	Severe: wetness
AvB: Arvilla-----	Severe: cutbanks cave	Slight	Slight	Slight	Slight	Moderate: droughty
Bd: Bearden, SALINE-----	Severe: wetness	Moderate: shrink-swell wetness	Severe: wetness	Moderate: shrink-swell wetness	Severe: frost action low strength	Severe: excess salt
Be: Bearden-----	Severe: wetness	Moderate: shrink-swell wetness	Severe: shrink-swell wetness	Moderate: shrink-swell wetness	Severe: frost action low strength	Moderate: wetness
Bg: Bearden, CLAY SUBSTRATUM	Severe: wetness	Moderate: shrink-swell wetness	Severe: shrink-swell wetness	Moderate: shrink-swell wetness	Severe: frost action low strength	Moderate: wetness
Bn: Bearden-----	Severe: wetness	Moderate: shrink-swell wetness	Severe: shrink-swell wetness	Moderate: shrink-swell wetness	Severe: frost action low strength	Moderate: wetness
Lindaas-----	Severe: ponding	Severe: shrink-swell ponding	Severe: ponding	Severe: shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: ponding
Bo: Bearden-----	Severe: wetness	Moderate: shrink-swell wetness	Severe: shrink-swell wetness	Moderate: shrink-swell wetness	Severe: frost action low strength	Moderate: wetness
Overly-----	Moderate: too clayey wetness	Moderate: shrink-swell	Moderate: shrink-swell wetness	Moderate: shrink-swell	Severe: frost action low strength	Slight
Bp: Bearden-----	Severe: wetness	Moderate: shrink-swell wetness	Severe: shrink-swell wetness	Moderate: shrink-swell wetness	Severe: frost action low strength	Moderate: wetness
Perella-----	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding	Severe: frost action low strength ponding	Severe: ponding
Bs: Bearden-----	Severe: wetness	Moderate: shrink-swell wetness	Severe: shrink-swell wetness	Moderate: shrink-swell wetness	Severe: frost action low strength	Moderate: wetness
Glyndon-----	Severe: cutbanks cave	Slight	Moderate: wetness	Slight	Severe: frost action	Slight
Bt: Beotia-----	Severe: cutbanks cave	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: frost action low strength	Slight
Bu: Bohnsack-----	Severe: wetness	Moderate: wetness	Severe: wetness	Moderate: wetness	Severe: frost action	Slight

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Bv: Bohnsack-----	Severe: wetness	Moderate: wetness	Severe: wetness	Moderate: wetness	Severe: frost action	Slight
Tiffany-----	Severe: ponding cutbanks cave	Severe: ponding	Severe: ponding	Severe: ponding	Severe: frost action ponding	Severe: ponding
Bw: Borup-----	Severe: wetness cutbanks cave	Severe: wetness	Severe: wetness	Severe: wetness	Severe: frost action wetness	Severe: wetness
Bx: Borup, SALINE-----	Severe: wetness cutbanks cave	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: frost action wetness	Severe: excess salt wetness
CaA: Cashel-----	Severe: wetness	Severe: flooding shrink-swell	Severe: flooding wetness	Severe: flooding shrink-swell	Severe: low strength shrink-swell	Moderate: flooding
CaC: Cashel-----	Severe: wetness	Severe: flooding shrink-swell	Severe: flooding wetness	Severe: flooding shrink-swell	Severe: low strength shrink-swell	Severe: flooding
Channeled-----	---	---	---	---	---	---
Co: Colvin-----	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: frost action low strength wetness	Severe: wetness
Cs: Colvin, SALINE-----	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: low strength wetness	Severe: excess salt wetness
Cu: Cut And Fill Land-----	Slight	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: low strength	Slight
Dd: Divide-----	Severe: wetness cutbanks cave	Moderate: wetness	Severe: wetness	Moderate: wetness	Moderate: frost action wetness	Moderate: wetness
Do: Doran-----	Moderate: wetness	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: frost action low strength shrink-swell	Slight
Dv: Dovray-----	Severe: ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: too clayey ponding
EdA: Egeland-----	Severe: cutbanks cave	Slight	Slight	Slight	Moderate: frost action	Slight
EgA: Egeland-----	Severe: cutbanks cave	Slight	Slight	Slight	Moderate: frost action	Slight
Embden-----	Severe: cutbanks cave	Slight	Moderate: wetness	Slight	Moderate: frost action	Slight
EgB: Egeland-----	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Moderate: frost action	Slight

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Embden-----	Severe: cutbanks cave	Slight	Moderate: wetness	Moderate: slope	Moderate: frost action	Slight
Em: Embden-----	Severe: cutbanks cave	Slight	Moderate: wetness	Slight	Moderate: frost action	Slight
En: Embden-----	Severe: cutbanks cave	Slight	Moderate: wetness	Slight	Moderate: frost action	Slight
Eo: Emrick-----	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
EPA: Emrick-----	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
Heimdal-----	Slight	Slight	Slight	Slight	Moderate: frost action	Slight
FaA: Fairdale-----	Moderate: flooding wetness	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
Fb: Fargo-----	Severe: wetness cutbanks cave	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: wetness
Fc: Fargo-----	Severe: wetness cutbanks cave	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: too clayey wetness
Fd: Fargo-----	Severe: wetness cutbanks cave	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: too clayey wetness
Dovray-----	Severe: ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: too clayey ponding
Fe: Fargo-----	Severe: wetness cutbanks cave	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: wetness
Enloe-----	Severe: ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: ponding
Fg: Fargo-----	Severe: wetness cutbanks cave	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: too clayey wetness
Enloe-----	Severe: ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: too clayey ponding
Fh: Fargo-----	Severe: wetness cutbanks cave	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: too clayey wetness

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Hgne-----	Severe: wetness cutbanks cave	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: too clayey wetness
Fn: Fargo-----	Severe: wetness cutbanks cave	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: too clayey wetness
Ryan-----	Severe: ponding cutbanks cave	Severe: flooding shrink-swell ponding	Severe: flooding shrink-swell ponding	Severe: flooding shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: excess sodium too clayey ponding
Ga: Galchutt-----	Severe: wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: frost action low strength shrink-swell	Moderate: wetness
Fargo-----	Severe: wetness cutbanks cave	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: too clayey wetness
Gd: Gardena-----	Moderate: wetness	Slight	Moderate: wetness	Slight	Severe: frost action	Slight
GeB: Gardena-----	Moderate: wetness	Slight	Moderate: wetness	Moderate: slope	Severe: frost action	Slight
Eckman-----	Slight	Slight	Slight	Moderate: slope	Severe: frost action	Slight
GfC: Gardena-----	Moderate: wetness	Slight	Moderate: wetness	Moderate: slope	Severe: frost action	Slight
Zell-----	Slight	Slight	Slight	Moderate: slope	Severe: frost action	Slight
Gg: Gilby-----	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: frost action	Moderate: wetness
Gh: Gilby-----	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: frost action	Moderate: wetness
Tonka-----	Severe: ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: ponding
Gk: Gilby, SALINE-----	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: frost action	Severe: excess salt
Tonka-----	Severe: ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: ponding
Gm: Glyndon-----	Severe: cutbanks cave	Slight	Moderate: wetness	Slight	Severe: frost action	Slight
Gn: Glyndon, SALINE-----	Severe: wetness cutbanks cave	Moderate: wetness	Severe: wetness	Moderate: wetness	Severe: frost action	Severe: excess salt

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Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Go: Glyndon-----	Severe: cutbanks cave	Slight	Moderate: wetness	Slight	Severe: frost action	Slight
Perella-----	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding	Severe: frost action low strength ponding	Severe: ponding
Gp: Gravel Pits-----	Severe: slope cutbanks cave	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope small stones droughty
Gr: Glyndon-----	Severe: cutbanks cave	Slight	Moderate: wetness	Slight	Severe: frost action	Slight
Tiffany-----	Severe: ponding cutbanks cave	Severe: ponding	Severe: ponding	Severe: ponding	Severe: frost action ponding	Severe: ponding
Gs: Grano-----	Severe: ponding cutbanks cave	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: too clayey ponding
GwA: Great Bend-----	Severe: cutbanks cave	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell	Severe: frost action low strength	Slight
GwC: Great Bend-----	Severe: cutbanks cave	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: frost action low strength	Slight
GwD: Great Bend-----	Severe: cutbanks cave	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: frost action low strength	Moderate: slope
Ha: Hamar-----	Severe: wetness cutbanks cave	Severe: wetness	Severe: wetness	Severe: wetness	Moderate: frost action wetness	Moderate: wetness droughty
Hb: Hamerly-----	Severe: wetness	Moderate: shrink-swell wetness	Severe: wetness	Moderate: shrink-swell wetness	Severe: frost action	Moderate: wetness
Tonka-----	Severe: ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: ponding
Hc: Hamerly, SALINE-----	Severe: wetness	Moderate: shrink-swell wetness	Severe: wetness	Moderate: shrink-swell wetness	Severe: frost action low strength	Severe: excess salt
Tonka-----	Severe: ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: ponding
HeA: Hecla-----	Severe: cutbanks cave	Slight	Moderate: wetness	Slight	Moderate: frost action	Moderate: droughty
HfA: Hecla-----	Severe: cutbanks cave	Slight	Moderate: wetness	Slight	Moderate: frost action	Moderate: droughty

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HmB: Hecla-----	Severe: cutbanks cave	Slight	Moderate: wetness	Slight	Moderate: frost action	Moderate: droughty
Maddock-----	Severe: cutbanks cave	Slight	Slight	Slight	Slight	Moderate: droughty
Hn: Hegne-----	Severe: wetness cutbanks cave	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: too clayey wetness
Enloe-----	Severe: ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: too clayey ponding
Ho: Hegne-----	Severe: wetness cutbanks cave	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: too clayey wetness
Fargo-----	Severe: wetness cutbanks cave	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: too clayey wetness
HrB: Heimdal-----	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
Emrick-----	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
HsC: Heimdal-----	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
Esmond-----	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
La: Ladelle-----	Moderate: flooding wetness	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding frost action low strength	Moderate: flooding
Lm: Lamoure-----	Severe: wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding low strength wetness	Severe: wetness
Ln: Lankin-----	Moderate: wetness	Moderate: shrink-swell	Moderate: shrink-swell wetness	Moderate: shrink-swell	Severe: low strength	Slight
Lp: La Prairie-----	Moderate: flooding wetness	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding low strength	Moderate: flooding
Lu: Ludden-----	Severe: ponding cutbanks cave	Severe: flooding shrink-swell ponding	Severe: flooding shrink-swell ponding	Severe: flooding shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: flooding too clayey ponding
M-W: Miscellaneous Water----	---	---	---	---	---	---

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Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Ma: Marsh-----	Severe: ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: ponding
Na: Nahon-----	Severe: cutbanks cave	Severe: shrink-swell	Moderate: shrink-swell wetness	Severe: shrink-swell	Severe: low strength shrink-swell	Severe: excess sodium
NuA: Nutley-----	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Severe: too clayey
NuB: Nutley-----	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Severe: too clayey
NuC: Nutley-----	Moderate: too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: low strength shrink-swell	Severe: too clayey
NuD: Nutley-----	Moderate: slope too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell slope	Severe: low strength shrink-swell	Severe: too clayey
NuE: Nutley-----	Severe: slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: slope too clayey
Oa: Ojata-----	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: low strength wetness	Severe: excess salt wetness
Or: Overly-----	Moderate: too clayey wetness	Moderate: shrink-swell	Moderate: shrink-swell wetness	Moderate: shrink-swell	Severe: frost action low strength	Slight
Os: Overly-----	Moderate: too clayey wetness	Moderate: shrink-swell	Moderate: shrink-swell wetness	Moderate: shrink-swell	Severe: frost action low strength	Slight
Fargo-----	Severe: wetness cutbanks cave	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell wetness	Severe: too clayey wetness
OvB: Overly-----	Moderate: too clayey wetness	Moderate: shrink-swell	Moderate: shrink-swell wetness	Moderate: shrink-swell slope	Severe: frost action low strength	Slight
Great Bend-----	Severe: cutbanks cave	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Severe: frost action low strength	Slight
Pe: Perella-----	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding	Severe: frost action low strength ponding	Severe: ponding
Pr: Playmoor-----	Severe: wetness cutbanks cave	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding low strength wetness	Severe: excess salt wetness

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ReA: Renshaw-----	Severe: cutbanks cave	Slight	Slight	Slight	Slight	Moderate: droughty
Ro: Rockwell-----	Severe: wetness cutbanks cave	Severe: wetness	Severe: wetness	Severe: wetness	Severe: frost action	Moderate: wetness
SmB: Serden-----	Severe: cutbanks cave	Slight	Slight	Slight	Slight	Moderate: droughty
Maddock-----	Severe: cutbanks cave	Slight	Slight	Slight	Slight	Moderate: droughty
SrB: Sioux-----	Severe: cutbanks cave	Slight	Slight	Slight	Slight	Severe: droughty
Arvilla-----	Severe: cutbanks cave	Slight	Slight	Slight	Slight	Moderate: droughty
Sv: Swenoda-----	Moderate: wetness	Slight	Moderate: shrink-swell wetness	Slight	Moderate: frost action	Slight
Sw: Swenoda-----	Moderate: wetness	Slight	Moderate: shrink-swell wetness	Slight	Moderate: frost action	Slight
Tf: Tiffany-----	Severe: ponding cutbanks cave	Severe: ponding	Severe: ponding	Severe: ponding	Severe: frost action ponding	Severe: ponding
To: Tonka-----	Severe: ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: shrink-swell ponding	Severe: low strength shrink-swell ponding	Severe: ponding
TrA: Towner-----	Severe: cutbanks cave	Slight	Moderate: shrink-swell wetness	Slight	Moderate: frost action	Moderate: droughty
Ud: Udorthents-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
Un: Ulen-----	Severe: cutbanks cave	Slight	Moderate: wetness	Slight	Moderate: frost action	Moderate: droughty
Vd: Vallers-----	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: frost action	Moderate: wetness
Doran-----	Moderate: wetness	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell	Severe: frost action low strength shrink-swell	Slight
Vk: Viking-----	Severe: wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: shrink-swell wetness	Severe: low strength shrink-swell	Severe: too clayey
W: Water-----	---	---	---	---	---	---

Building Site Development--Continued
Traill County, North Dakota

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
WaA: Wahpeton-----	Moderate: flooding too clayey	Severe: flooding shrink-swell	Severe: flooding shrink-swell	Severe: flooding shrink-swell	Severe: flooding low strength shrink-swell	Severe: too clayey
Wh: Wheatville-----	Severe: cutbanks cave	Slight	Severe: shrink-swell	Slight	Severe: frost action	Slight
Wn: Wyndmere-----	Severe: wetness cutbanks cave	Moderate: wetness	Severe: wetness	Moderate: wetness	Severe: frost action	Moderate: wetness droughty
Wo: Wyndmere-----	Severe: wetness cutbanks cave	Moderate: wetness	Severe: wetness	Moderate: wetness	Severe: frost action	Moderate: wetness
Ws: Wyndmere, SALINE-----	Severe: wetness cutbanks cave	Moderate: wetness	Severe: wetness	Moderate: wetness	Severe: frost action	Severe: excess salt
Wt: Wyndmere-----	Severe: wetness cutbanks cave	Moderate: wetness	Severe: wetness	Moderate: wetness	Severe: frost action	Moderate: wetness droughty
Tiffany-----	Severe: ponding cutbanks cave	Severe: ponding	Severe: ponding	Severe: ponding	Severe: frost action ponding	Severe: ponding
ZeE: Zell-----	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: frost action slope	Severe: slope

